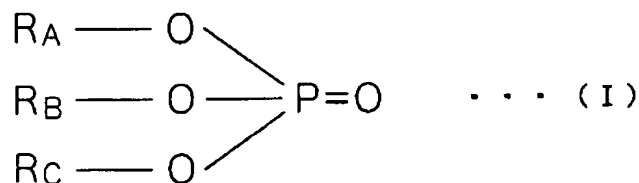


CLAIMS

1. A lubricant for a fluid dynamic bearing comprising a base oil containing a phosphate triester represented by a general formula (I)



- 5 (wherein, R_A , R_B and R_C respectively represent alkyl groups),

wherein in the base oil, a phosphate triester in which the three alkyl groups in the general formula (I) are saturated hydrocarbon groups and number of carbon atoms of one of the three saturated hydrocarbon groups differs from number of carbon atoms of the other two saturated hydrocarbon groups is contained as a primary base oil.

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2. A lubricant for a fluid dynamic bearing according to claim 1,

wherein the primary base oil has at least one saturated hydrocarbon group having 8 to 9 carbon atoms, and at least one saturated hydrocarbon group having 6 to 7 carbon atoms.

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3. A lubricant for a fluid dynamic bearing according to claim 2,

wherein the saturated hydrocarbon group having 8 to 9 carbon atoms is any one or more of 2-ethyl-1-hexyl group, 1-octyl group, 3,5,5-trimethyl-1-hexyl group, isononyl group, and 1-nonyl group.

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4. A lubricant for a fluid dynamic bearing according to claim 2,
wherein the saturated hydrocarbon group having 6 to 7 carbon atoms is any one or more of 3-methyl-1-hexyl group, 5-methyl- 1-hexyl group, 1-heptyl group, and 1-hexyl group.

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5. A lubricant for a fluid dynamic bearing according to claim 1,
wherein the base oil is formed by adding at least one or more selected from other base oil, a sulfur-based extreme pressure agent, a rust preventive agent, an antioxidant, an acidic phosphate ester, and an amine-based neutralizer to the primary base oil.

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6. A lubricant for a fluid dynamic bearing according to claim 5,
wherein the other base oil contains at least one or more selected from a mineral oil-based base oil, a synthetic base oil, an ester oil, and a phosphate triester having saturated hydrocarbon groups of 6 to 9 carbon atoms, and

15 a content of the primary base oil relative to the base oils is from 30% by weight to less than 100% by weight.

7. A lubricant for a fluid dynamic bearing according to claim 1,
wherein average number of carbon atoms of the three saturated hydrocarbon
20 groups contained in the primary base oil is more than 7 and less than 8.

8. A lubricant for a fluid dynamic bearing according to claim 6,
wherein average number of carbon atoms of the saturated hydrocarbon groups of all phosphate triesters resulting from combining the phosphate triester in the form of the
25 primary base oil with the phosphate triester contained in the other base oil is more than 7

and less than 8.

9. A lubricant for a fluid dynamic bearing according to claim 2,
wherein all the saturated hydrocarbons contained in the primary base oil are linear

5 alkyl groups.

10. A lubricant for a fluid dynamic bearing according to claim 2,
wherein the saturated hydrocarbon groups having 8 to 9 carbon atoms contained in
the primary base oil are branched alkyl groups, and

10 the saturated hydrocarbon groups having 6 to 7 carbon atoms contained in the
primary base oil are linear alkyl groups.

11. A lubricant for a fluid dynamic bearing according to claim 2,
wherein the saturated hydrocarbon groups having 8 to 9 carbon atoms contained in

15 the primary base oil are linear alkyl groups, and

the saturated hydrocarbon groups having 6 to 7 carbon atoms contained in the
primary base oil are branched alkyl groups.

12. A fluid dynamic bearing comprising:

20 a shaft body;

a shaft body support section in which a shaft body insertion hole is formed that
houses the shaft body while allowing to rotate freely;

the lubricant for the fluid dynamic bearing according to any one of claims 1 to 11
filled into a gap formed between the shaft body and the shaft body insertion hole; and

25 a dynamic pressure generation section in which dynamic pressure generation

grooves are formed in at least one or both of a surface of the shaft body and an inner wall surface of the shaft body insertion hole, the dynamic pressure generation grooves generating dynamic pressure by gathering the lubricant for the fluid dynamic bearing when the shaft body and the shaft body support section are relatively rotated around its

5 axis,

wherein further comprising an oil seal section which is formed on an end of the gap and gradually expands towards an opening of the shaft body insertion hole, and a ratio of a surface area of the opening ($S \text{ mm}^2$) to a volume of the oil seal section ($V \text{ mm}^3$) satisfies a relationship of $2 \leq S/V \leq 6 \text{ (1/mm)}$.

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13. A dynamic fluid bearing according to claim 12,

wherein the surface area of the opening section satisfies a relationship of $0.5 \leq S \leq 6 \text{ (mm}^2\text{)}$.

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14. A fluid dynamic bearing comprising:

a shaft body;

a shaft body support section in which a shaft body insertion hole is formed that houses the shaft body while allowing to rotate freely;

the lubricant for the fluid dynamic bearing according to any one of claims 1 to 11

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filled into a gap formed between the shaft body and the shaft body insertion hole; and

a dynamic pressure generation section in which dynamic pressure generation grooves are formed in at least one or both of a surface of the shaft body and an inner wall surface of the shaft body insertion hole, the dynamic pressure generation grooves generating dynamic pressure by gathering the lubricant for the fluid dynamic bearing

25 when the shaft body and the shaft body support section are relatively rotated around its

axis,

wherein the shaft body and the shaft body support section are formed from a same type of ferrous metal material.

5 15. A motor comprising:

a stator having a core and a coil;

a rotor having a permanent magnet arranged in a shape of a ring in opposition to the stator; and

the fluid dynamic bearing according to any one of claims 12 to 14,

10 wherein the stator and the shaft body support section are integrally fixed, and the rotor is fixed to the shaft body.

16. An information recording and retrieval device comprising:

the motor according to claim 15;

15 an information recording medium in a form of a thin plate; and

a head stack assembly that records information onto the information recording medium and retrieves information recorded on the information recording medium,

wherein the rotor comprises a fixing section that fixes the information recording medium.